Catalogue of American Amphibians and Reptiles.

McCranie, J.R. 2010. *Plectrohyla exquisita*.

Plectrohyla exquisita McCranie and Wilson Rana Trepadora de Dos Espinas Cusucoense

Plectrohyla guatemalensis: McCranie and Wilson 1981:6.
Plectrohyla teuchestes: Duellman and Campbell 1992:15 (part).
Plectrohyla sp.: Wilson and McCranie 1993:3.
Plectrohyla exquisita McCranie and Wilson 1998:96. Type-locality, "El Cusuco, above the visitors center of Parque Nacional El Cusuco, Cerro Cusuco (15°31'N, 88°12'W), 5.6 km WSW Buenos Aires, 1550 m elevation, Sierra de Omoa, Departamento de Cortés, Honduras." Holotype, National Museum of Natural History (USNM) 513483, an adult male, collected by D. Almendarez, J.R. McCranie, and L.D. Wilson, 23 July 1996 (examined by author).

• **CONTENT.** No subspecies are recognized.

• **DEFINITION.** *Plectrohyla exquisita* is a large hylid (SVL 69.3–80.7 mm, mean = 75.4 ± 3.9 in 7 adult males, 68.2–80.7 mm, mean = 74.1 ± 4.1 in 7 adult females) with a moderately long, broad head (head length/SVL 0.299–0.341 in adult males, 0.294–0.341 in adult females; head width/SVL 0.330–0.377 in adult males, 0.316–0.367 in adult females). The snout is semicircular in dorsal aspect in both sexes and obtuse in lateral profile in males and obtuse to slightly obtuse in lateral profile in females. A vertical rostral keel is absent. The top of the head is slightly concave. The canthus is angular and the loreal region is concave. The nostrils are directed laterally and are situated at a point about one-half the distance between the anterior border of the prominent eye (interorbital distance/eye length 1.032–1.222 in males, 0.901–1.114 in females) and the tip of the snout. The supratympanic fold is well developed and obscures the upper edge of the otherwise distinct and large tympanum (tympanum length/eye length 0.306–0.397 in males, 0.314–0.361 in females). The tympanum is located posteroventral to the lower half of the eye and is separated from the eye by a distance about twice the tympanum length. The upper eyelids are large and prominent (upper eyelid width/interorbital distance 0.968–1.053 in males, 1.000–1.188 in females). The pupil is horizontally elliptical and the palpebral membrane is translucent and unpatterned.

The arms are hypertrophied in the males with the forearms slightly heavier than the upper arms. The upper arms are more slender than the moderately robust forearms in the females. A distinct transverse dermal fold is present on the upper surface of each wrist. There is no vertical dermal fold on the elbows. A row of tubercles that forms a dermal ridge is usually present along the posterior ventrolateral edge of each forearm. An axillary membrane is absent. The finger discs are broadly expanded (third finger disc width/tympanum length 1.440–2.190 in males, 1.391–2.091 in females), with the disc covers rounded (even) and the disc pads broadened. The subarticular tubercles on the fingers are round and globular to conical, except the distal subarticular tubercle on finger IV is commonly bifid. Supernumerary tubercles are absent. The palmar tubercle is elevated and ovoid, and commonly tripartite. The accessory palmar tubercles are numerous, round, and globular. The prepollex is distinctly enlarged, especially in the males, with two curved spines of which the outer is the longest (the bone of the longest spine occasionally protrudes through the skin). The male prepollex occasionally bears tiny nuptial excrescences dorsally (excrescences also extend onto the inner surface of the thumb and the inner surface of finger II). The relative length of the fingers is I<II<IV<III. The webbing is basal between fingers I–II, the remaining webbing formula is II 2+–3 1/2 III 3- –2 1/2 IV. Lateral keels are present on the unwebbed portions of the fingers.



FIGURE 1. Adult female of the buff phase (above, KU 192882) and the green phase (below, KU 192881) of *Plectrohyla exquisita* (photographs by the author).

The hind limbs are long (shank length/SVL 0.502–0.563 in males, 0.491–0.591 in females; foot length/SVL 0.433–0.513 in males, 0.436–0.486 in females). The heels broadly overlap when the hind limbs are held at right angles to the body. A vertical dermal fold is present on the outer lateral edge of each heel. There is no dermal ridge along the posterior ventrolateral edge of each tarsus. There is a low, poorly

developed inner tarsal fold on each tarsus. The subarticular toe tubercles are round and globular and supernumerary tubercles are absent. The plantar tubercles are small and round, and vary from barely raised to globular. The inner metatarsal tubercle is ovoid to elongate and elevated, and is visible from above. The outer metatarsal tubercle is small, ovoid, and elevated. Relative toe length is I<II<V=III<IV. The toe discs are broadly expanded, but are slightly smaller than the finger discs. The disc covers are rounded (even) and the disc pads are broadened. The webbing formula of the feet is I 3/4–2- II 3/4–2 III 3/4–2 IV 2–3/4 V. Lateral keels or fleshy fringes are present on the unwebbed portions of the toes.

The vent opening is directed posteroventrally near the midlevel of the thighs with the skin surrounding the vent coarsely areolate to strongly tuberculate. The skin of all dorsal surfaces is smooth to weakly granular, and occasionally has scattered small tubercles, especially on the lower back and hind limbs. The skin of the throat and chest is weakly tuberculate, that of the belly and the ventral surfaces of the thighs is coarsely areolate.

The tongue is ovoid and slightly free posteriorly. The vomerine tooth patches are on elevated and medial, nearly transverse ridges located just posterior to the level of, or at the posterior level of the ovoid to elliptical choanae. A distance slightly less than the width of each patch separates the vomerine tooth patches medially. The maxillary teeth are spatulate. Adult males lack vocal slits and a vocal sac.

There are two distinct color phases in this species with the green phase being much more common than the buff phase. Color in life of the male holotype (USNM 513483): all dorsal surfaces were Parrot Green (color code 60; Smithe 1975–1981), except for the digits and associated webbing which were pale pinkish orange dorsally and ventrally. The remaining ventral surfaces were Sulphur Yellow (57). The iris was pale greenish gold with black reticulations. A female (KU 192881) was similar to USNM 513483, except that the iris was pale brown with black reticulations. A female (KU 192882) of the buff phase had all dorsal surfaces Buff (124), except for the digits and associated webbing which were pale pinkish orange dorsally and ventrally, and the iris was pale brown with black reticulations.

Color in alcohol of the green phase: all dorsal surfaces (except for the digits and associated webbing) are dark gray to dark brown. Fingers I–II, toes I–III, and all webbing are cream colored and lightly to heavily flecked with brown. The lower flanks are pale brown to brownish gray and the upper flanks are grayish brown to pale gray. The anterior and posterior surfaces of the thighs are similar in color to that of the flanks. All ventral surfaces are cream colored and lightly to moderately flecked with grayish brown. Color in alcohol of the buff phase: all dorsal surfaces (except for the digits and associated webbing) are medium brown. The remaining coloration is similar to that of the green phase, except that the flanks and the anterior and posterior surfaces of the thighs are cream colored and lightly flecked with brown along the lower edges with the brown flecking becoming more dense along the upper edges.



FIGURE 2. Lateral view of the tadpole of *Plectrohyla exquisita* (in USNM lot 513494) in Gosner (1960) stage 25. Scale bar = 10 mm. Drawing by Randy Nutt.

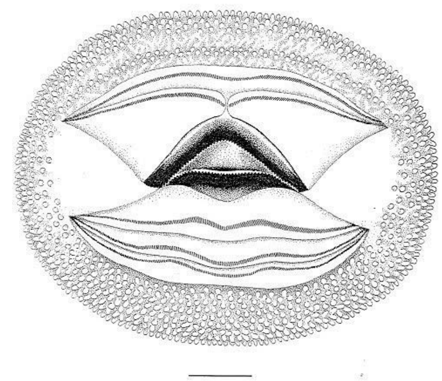


FIGURE 3. Oral disc of the tadpole of *Plectrohyla exquisita* (in USNM lot 513494) in Gosner (1960) stage 25. Scale bar = 1 mm. Drawing by Randy Nutt.

A typical tadpole (in USNM lot 513494) in stage 25 (Gosner 1960) has a body length of 11.5 mm, a tail length of 22.4 mm, and a total length of 33.9 mm. The body is slightly depressed and slightly wider than high. The snout is semicircular and broadly expanded in dorsal aspect and the snout width is only lightly less than the greatest width of the head. The snout is rounded in lateral profile and slopes anteriorly from the nostrils. The tip of the snout is visible in ventral view. The eyes are moderately large (eye length/body length about 0.14) and are directed dorsolaterally. The interorbital distance is about 3.6 mm. The nostrils are situated at a point about one-quarter the distance from the eyes to the tip of the snout and are directed anterolaterally. The spiracle is sinistral and directed posterodorsally, and is located just below the midline at about three-quarters the distance from the tip of the snout to the posterior end of the body. The vent tube is dextral. The coils of the gut are looped. The tail musculature is robust and extends nearly to the tip of the rounded tail. The height of the tail musculature is slightly greater than the height of either the dorsal or ventral fins at the midlength of the tail. The dorsal fin terminates at the posterior end of the body. The oral disc is huge (oral disc width/snout width about 1.07) and ventral, and is continuously bordered by one row of small marginal papillae (about 15 per mm). Two widely spaced rows of larger submarginal papillae are present between the A-1 tooth row and the marginal papillae, with the row nearest to the

marginal papillae irregularly formed. There are 6–8 rows of submarginal papillae present between the P-3 tooth row and the marginal papillae. The oral disc is not emarginated. The keratinized jaw sheaths bear extremely short, blunt to somewhat pointed serrations. The upper jaw sheath is wide and widely arched, with a slightly paler-colored posterior concavity, and lacks lateral processes. The lower jaw sheath is medium-sized and is barely arched. The labial tooth rows are 2/3, with the A-2 row narrowly interrupted medially. All tooth rows are long and subequal, and extend to the lateral portion of the oral disc.

Color in formalin preserved tadpoles: the head and body are dark brown dorsally and laterally and pale gray ventrally. The tail musculature is pale tan with elongate brown blotches dorsally and flecked with brown laterally. The tail fins are translucent with brown spotting (all of the above descriptions, except color in life, are based on data taken by McCranie and published in McCranie and Wilson 1998, 2002; the color in life notes were modified from Wilson's field notes).

• DIAGNOSIS. The enlarged prepollex with two curved spines will distinguish *Plectrohyla exquisita* from all other species of *Plectrohyla* (*sensu* Duellman 2001; see **Remarks**), except for *P. acanthodes, P. guatemalensis, P. hartwegi, P. pokomchi*, and *P. teuchestes*. *Plectrohyla acanthodes* is a smaller species (to 63 mm SVL) that has dark spots on a dull olive-green or gray dorsum in life. *Plectrohyla guatemalensis* has a dull brown or dull green to dark green dorsum in life that is almost always spotted or mottled with darker pigment and is a smaller species with a maximum known SVL of 60 mm. *Plectrohyla hartwegi* has the flanks and the anterior and posterior surfaces of the thighs with orange (in life) or pale creamy-tan (in preservative) blotches or large spots. *Plectrohyla pokomchi* has red webbing on the hind feet in life, is a smaller species (to 55 mm SVL), and the adult males have vocal slits. *Plectrohyla teuchestes* has the snout nearly vertical in lateral profile (see drawings in McCranie and Wilson 1998) and a dull green dorsum in life.

• DESCRIPTIONS. Detailed descriptions of the external morphology of the adult are in McCranie and Wilson (1998, 2002), Duellman (2001), McCranie and Castañeda (2007), and Townsend and Wilson (2008). Detailed descriptions of the tadpole are in McCranie and Wilson (1998, 2002), Duellman (2001), and McCranie and Castañeda (2007).

• ILLUSTRATIONS. Color illustrations of adults are in Duellman (2001), McCranie and Wilson (2002), Wilson and McCranie (2004c), McCranie and Castañeda (2007), and Townsend and Wilson (2008). A black and white photograph of an adult is in McCranie and Wilson (1998). Line drawings of a tadpole are in McCranie and Wilson (1998, 2002), Duellman (2001), McCranie and Castañeda (2007), and Townsend and Wilson (2008). A line drawing of the adult snout shape is in McCranie and Wilson (1998).



Map. Distribution of *Plectrohyla exquisita*. All known localities are in the vicinity of the type-locality (open circle).

• DISTRIBUTION. *Plectrohyla exquisita* is known to occur from 1430 to 1780 m elevation in the Lower Montane Wet Forest Formation (Holdridge 1967) in the vicinity of Cerro Cusuco in the Sierra de Omoa in the Departamento de Cortés, Honduras. Adults were found while active at night on vegetation about 2–3 m above the Río Cusuco. Adults were found sleeping exposed in trees during the day about 3–6 m above the Río Cusuco. Those adults found during the day jumped into the Río Cusuco when touched by a long stick or when the tree limbs they were on were shaken. However, they are poor swimmers and were easily captured. Adults were seen during each month (April to September) in which my field parties visited the area. Metamorphosing froglets were found active at night and inactive during the day on low vegetation above the Río Cusuco during May, July, and August. Solitary tadpoles were seen in the Río Cusuco during May, July, and August.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. What little is known about the natural history of this species was summarized in McCranie and Wilson (1998, 2002), McCranie and Castañeda (2007), and Townsend and Wilson (2008). Wilson and McCranie (2004b,c) and McCranie and Wilson (2006) classified the species as having stable populations, but Wilson and McCranie (2004a) classified the species as one of "medium vulnerability" because of its limited distribution. Townsend and Wilson (2008) also classified the species as critically endangered. The phylogenetic analysis in Duellman (2001) placed *P. exquisita* in an unresolved trichotomy with *P. hartwegi* and *P. teuchestes* and sister to a clade containing *P. acanthodes* and *P. guatemalensis*.

The species is mentioned in the following faunal lists, checklists, and similar compendia (only references not previously mentioned in this account are included here): Anonymous 1994 (as both *P. guatemalensis* and *P. teuchestes*), Campbell 1999 and Duellman 1993 (included with *P. teuchestes*), and da Silva 1998, Faivovich et al. 2005, McCranie 2006,

2007, McCranie and Wilson 1997, Townsend 2006, Townsend et al. 2006, Wilson and McCranie 1994, and Wilson et al. 2001 (as *P. teuchestes*).

• **REMARKS.** Faivovich et al. (2005) greatly expanded the generic content of *Plectrohyla* by adding the *Hyla bistincta* group and three other species from two other species groups as recognized by Duellman (2001). However, these additional species are all distributed in Mexico, and thus need not be compared to *P. exquisita* in the diagnosis herein.

• **ETYMOLOGY.** The name *exquisita* is derived from the Latin adjective "exquisitus", meaning choice, excellent, or fine. The name is used in reference to the beauty of the adult dorsal coloration and to the large size of the frog.

• **COMMENT.** The vernacular name used herein is from McCranie and Castañeda (2007). Museum acronyms follow Leviton et al. (1985).

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